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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/269,624	03/30/1999	CHRISTOPHER ANGUS	SHSI1000WSW	1336

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EXAMINER
FLEURANTIN, JEAN B

ART UNIT	PAPER NUMBER
2172	

DATE MAILED: 04/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/269,624	Applicant(s) ANGUS ET AL.	
	Examiner Jean B Fleurantin	Art Unit 2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 January 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *31-46 and 51-82 are canceled. And 1-30 and 47-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30 and 47-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. Claims 31-46 and 51-82 are canceled.

Claims 1-30 and 47-50 are remained for examination.

2. Applicant's arguments filed on 01/30/2002 on pages 1-6 with respect to claims 1, and 47-48 have been fully considered but are not persuasive.

Response to Applicant' Remarks

3. As per claims 1, and 47-48 Applicant argues that the Doktor reference does not teach or fairly suggest:

On pages 4-6, Applicant stated that Doktor does not teach "each relationship between entities is associated with a period of validity." However, Examiner disagrees because Kelly includes the step of the relational data model which allows for two independent orthogonal time periods to be associated with each tuple (row) in a relation (table), it accomplishes this by using the timestamp datatype to append two time periods to each tuple Valid time and Transaction time Detailed Description Paragraph Right (231) Valid and Transaction each have two boundaries startTime and endTime, the two periods are orthogonal, i.e., they record different independent aspects of the tuple the Valid period is the time range during which a fact is true the Transaction period is the time range during which knowledge of a fact is current or stated another way the

time range during which a fact is recorded in the database; which is readable as relationship being associated with a historical period of validity (see col. 53, lines 6-40). Also, in column 60, lines 3 through 7, Kelley further teaches the steps of navigational queries that traverse the relational schema weaving the relationships between parent and dependent tables the two variables are the boundaries of either the valid or transaction period of the parent record. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Doktor and Kelley with the step of each said relationship being associated with a historical period of validity. This modification would allow the teachings of Doktor and Kelley to improve the accuracy of the data processing system.

In response to applicant's argument on page 5 that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Claim Rejections - 35 U.S.C. § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-30, and 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doktor (US Pat. No. 5,675,779)'submitted by the Applicant' in view of Kelley et al. (US Pat. No. 6,088,659) ("Doktor"), ("Kelley").

As per claims 1 and 47, Doktor substantially teaches a data processing system comprising a data storage device and a processor programmed to read data from, and write data to, said storage device (thus, the database system 100 comprises a central processing unit 'CPU' 110 which is operatively coupled so as to be controlled by an access control program 'object code' 120d stored in a first memory means 120 'i.e., read-only-memory, ROM, or random access memory, RAM'; which is readable as a data storage device and a processor programmed to read data from, and write data to, said storage device) (see cols. 7-8, lines 67-5), in which said storage device stores: a) multiple operation records each storing data relating to one or more historical operation involving at least one entity, each said operation record comprising data recording the operation, and data defining a date associated with the operation (thus, each of these answer is recorded as a paired set of an entity class number and an entity instance number, in response the

entity storage means then produces detailed information from the referenced entity instance tables; which is readable as multiple operation records each storing data relating to one or more historical operation involving at least one entity, each said operation record comprising data recording the operation) (see col. 33, lines 1-8);

b) multiple entity records storing data indicating relationships between said entities (thus, relational database tables are normally organized to create implied set and relations between their respective items of prestored information, which is readable as multiple entity records storing data indicating relationships between said entities) (see col. 5, lines 33-49). But, Doktor does not explicitly indicate the step of each said relationship being associated with a historical period of validity. However, Kelly implicitly indicates the step of the relational data model which allows for two independent orthogonal time periods to be associated with each tuple 'row' in a relation 'table', it accomplishes this by using the timestamp datatype to append two time periods to each tuple Valid time and Transaction time Detailed Description Paragraph Right '231' Valid and Transaction each have two boundaries startTime and endTime, the two periods are orthogonal, i.e., they record different independent aspects of the tuple the Valid period is the time range during which a fact is true the Transaction period is the time range during which knowledge of a fact is current or stated another way the time range during which a fact is recorded in the database; which is readable as relationship being associated with a historical period of validity (see col. 53, lines 6-40). Also, in column 60, lines 3 through 7, Kelley further teaches the steps of navigational queries that traverse the relational schema weaving the relationships between parent

and dependent tables the two variables are the boundaries of either the valid or transaction period of the parent record. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Doktor and Kelley with the step of each said relationship being associated with a historical period of validity. This modification would allow the teachings of Doktor and Kelley to improve the accuracy of the data processing system, and provide timely access to critical energy information by including interval data (see col. 5, lines 53-56).

As per claim 6, the limitations of claim 6 are rejected in the analysis of claim 1 above, and this claim is rejected on that basis.

As per claim 14, the analysis of claim 14 are rejected in the analysis of claim 1 above, and this claim is rejected on that basis.

As per claim 2, Doktor substantially teaches a system as claimed, wherein the processor is programmed to extract output data from a subset of said operation records, and to output said output data (thus, the implies relations between elements cannot be discerned by simply inspecting the raw data of each table instead relations are flushed out only with the aid of an access control program, which is readable as extract output data from a subset of said operation records, and to output said output data) (see col. 5, lines 33-46).

As per claim 3, Doktor substantially teaches a system as claimed, wherein the processor is programmed to select said subset by the steps of: inputting instructions defining one or more selected entities for which said output data relates (thus, relations may be explicitly defined in a

relation instances table so that unique relations between instances of a first entity class and instances and a second entity class can be identified, which is readable as inputting instructions defining one or more selected entities for which said output data relates) (see figure 7, col. 7, lines 50-52);

selecting said subset based on both the dates stored in said operation records and the historical periods of validity associated with the selected entities (thus, the implies relations between elements cannot be discerned by simply inspecting the raw data of each table instead relations are flushed out only with the aid of an access control program, which is readable as selecting said subset based on both the dates stored in said operation records and the historical periods of validity associated with the selected entities) (see col. 5, lines 33-46).

As per claims 4 and 7, in addition to the discussion in claim 1 above, Doktor teaches wherein the processor is programmed to select said subset to represent by the steps of inputting an analysis date (thus, relations may be explicitly defined in a relation instances table so that unique relations between instances of a first entity class and instances and a second entity class can be identified, which is readable as wherein the processor is programmed to select said subset to represent by the steps o£ inputting an analysis date) (see col. 7, lines 50-52);

selecting said subset using those selected entity relationships ((thus, relational database tables are normally organized to create implied set and relations between their respective items of prestored information, which is readable as selecting said subset using those selected entity relationships) (see col. 5, lines 33-35).

As per claim 5, Doktor substantially teaches a system as claimed, wherein the processor is programmed to offer the current date as a date option, to permit analysis of operation records anterior to that date as if the current relationship between entities had previously existed (thus, (see col. 5, lines 33-49). And, also column 3, lines 36 through 42.

As per claim 8, Doktor substantially teaches a system as claimed, wherein the processor is programmed to input a change from an existing said relationship between entities to a new said relationship (thus, databases require similar restructuring every time a new category of information relationships or a new type of inquiry is created, which is readable as input a change from an existing said relationship between entities to a new said relationship) (see col. 3, lines 36-42).

As per claim 9, Doktor substantially teaches a system as claimed, wherein the processor is programmed, on such a change, to store an end date for the period of validity of the existing relationship; to create a record of the new relationship, and to store a start date therefor (thus, databases require similar restructuring every time a new category of information relationships or a new type of inquiry is created, which is readable as on such a change, to store an end date for the period of validity of the existing relationship; to create a record of the new relationship, and to store a start date therefor) (see col. 3, lines 36-42).

As per claims 10 and 26, in addition to the discussion in claim 1 above, Doktor substantially teaches a system as claimed, wherein the entity records comprise an entity record for each entity (thus, a entity definition table is defined within the memory means of a computer

system to store the name of an allowed entity and a single other table; which is readable as wherein the entity records comprise an entity record for each entity) (see col. 6, lines 57-60);

an association record for each past or present relationship between a pair of said entities (thus, each of these answer is recorded as a paired set of an entity class number and an entity instance number, in response the entity storage means then produces detailed information from the referenced entity instance tables; which is readable as an association record for each past or present relationship between a pair of said entities (see col. 33, lines 1-9).

As per claim 11 and 12, the limitations of claims 11 and 12 are rejected in the analysis of claim 48, and these claims are rejected on that basis.

As per claim 13, Doktor substantially teaches a system as claimed, wherein the entity records represent first and second successive levels of hierarchy of a product family (see col. 5, lines 33-38).

As per claims 15 and 49, Doktor substantially teaches a system as claimed, wherein, if said operation records do not span the whole of said period, for each selected said entity to which the operation records relate, the processor is programmed to determine, from said entity records, a hierarchically higher entity and to repeat said determination and, in the event that said operation records relate to said hierarchically higher entity throughout the whole of said period, to use said hierarchically higher entity instead of said selected entity in selecting said subset of operation records (thus, the elements of the lowest level subsets are stored in base tables and higher level sets are built by defining in other tables combinations of keys which point to the base tables,

which is readable as wherein, if said operation records do not span the whole of said period, for each selected said entity to which the operation records relate, the processor is programmed to determine, from said entity records, a hierarchically higher entity and to repeat said determination and, in the event that said operation records relate to said hierarchically higher entity throughout the whole of said period, to use said hierarchically higher entity instead of said selected entity in selecting said subset of operation records) (see col. 5, lines 35-40).

As per claim 16, Doktor substantially teaches a system as claimed, in which said storage means contains multiple sets of said operation records, each said set comprising multiple said operation records, said sets relating to different classes of operations and said records within each set relating to different instances of the same type of operation (see cols. 16 and 17, lines 63-67, and 1-5).

As per claims 17, Doktor substantially teaches a system as claimed, in which each said operation record contains at least one variable data field storing a value of a measure from a range of possible said values for said measure (thus, the elements of the lowest level subsets are stored in base tables and higher level sets are built by defining in other tables combinations of keys which point to the base tables, which is readable as in which each said operation record contains at least one variable data field storing a value of a measure from a range of possible said values for said measure) (see col. 5, lines 35-38).

As per claims 18 and 20, Doktor substantially teaches a system as claimed, in which said

storage means further contains: c) metadata comprising multiple operation definition records, each defining the format of records of a respective said set of operation records (thus, relation definition table means comprised of at least one relation type record wherein each relation type record defines a relation type and includes cardinality data defining cardinality of said relation type; which is readable as metadata comprising multiple operation definition records, each defining the format of records of a respective said set of operation records) (see col. 33, lines 56-60).

As per claim 19, Doktor substantially teaches a system as claimed, in which each said operation record contains at least one variable data field storing a value of a measure from a range of possible said values for said measure, and in which each operation definition record indicates the units of said measure (thus, the elements of the lowest level subsets are stored in base tables and higher level sets are built by defining in other tables combinations of keys which point to the base tables, which is readable as in which each said operation record contains at least one variable data field storing a value of a measure from a range of possible said values for said measure, and in which each operation definition record indicates the units of said measure) (see col. 5, lines 33-38).

As per claims 21 and 50, Doktor substantially teaches a system as claimed, wherein the processor is programmed to: input at least one measure derivable from said operation records, to be analyzed (thus, databases require similar restructuring every time a new category of

information relationships or a new type of inquiry is created, which is readable as input at least one measure derivable from said operation records, to be analyzed) (see col. 3, lines 36-42);

determine, for each said set of operation records, whether said measure can be derived therefrom (see col. 3, lines 61-67);

where said measure could be derived from alternative said sets, select one of said sets (see col. 30, lines 28-33).

As per claim 22, Doktor substantially teaches a system as claimed, wherein said selection is based at least in part on the relative sizes of said sets (see abstract, lines 4-6).

As per claim 23, Doktor substantially teaches a system as claimed 23, wherein said selection is based at least in part on the relative difficulty of deriving said measure from the data stored in the variable data fields of each of said sets (thus, the set of entities and relationships may be expanded at any time during the life of the system without reprogramming or compiling computer code and without disrupting concurrent use of the system, which is readable as wherein said selection is based at least in part on the relative difficulty of deriving said measure from the data stored in the variable data fields of each of said sets) (see abstract, lines 4-6).

As per claim 24, in addition to the discussion in claim 21 above, Doktor teaches where necessary, derive said measure from a combination of a first value from a variable data field of a record of a first set of operation records, and a second first value from a variable data field of a record of a second set of operation records (thus, for development data representing a queried relationship between data objects, which is readable as derive said measure from a combination of

a first value from a variable data field of a record of a first set of operation records, and a second first value from a variable data field of a record of a second set of operation records) (see abstract, lines 2-4).

As per claim 25, in addition to the discussion in claims 21 and 24 above, Doktor teaches where necessary, derive said measure from an aggregation of first values from respective variable data fields of a plurality of records of a first set of operation records, having dates spanning a predetermined input time interval (thus, the set entities and relationships may be expanded at any time during the life of the system without reprogramming, which is readable as derive said measure from an aggregation of first values from respective variable data fields of a plurality of records of a first set of operation records, having dates spanning a predetermined input time interval) (see abstract, lines 1-9).

As per claim 27, Doktor substantially teaches a system as claimed, wherein said transactions are sales, inventory, or purchase transactions (see col. 17, lines 12-30).

As per claim 28, Doktor substantially teaches a system as claimed, wherein said processor is programmed to load one or more new said operation records into said storage device (see col. 3, lines 36-42).

As per claim 29-30, Doktor substantially teaches a system as claimed, wherein said processor is programmed to load one or more new said operation records into said storage device, and in which said processor is programmed to determine whether said new operation records comply with said metadata (see abstract, lines 1-7).

As per claim 48, in addition to the discussion in claim 1, Doktor teaches wherein the entity records comprise a hierarchical structure, in which at least d first entity record relates to a specific entity, and a second to a more generic entity encompassing said specific entity, said records including link data linking said first and second entity records whereby to allow said processor to traverse said, hierarchy (thus, wherein logical links between a first informational object first piece of real data and a second informational object second piece of real data are established by a chain of direct or indirect address pointers, which is readable as in which at least d first entity record relates to a specific entity, and a second to a more generic entity encompassing said specific entity, said records including link data linking said first and second entity records whereby to allow said processor to traverse; see col. 3, lines 60-63), said processor being arranged to generate output data by inputting instructions defining one or more selected entity dimensions across which said output data is to be distributed (see col. 4, lines 1-6).

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Carpenter US Patent Number 6,199,068 relates to business system.

Conclusion

6. Any inquiry concerning this communication from examiner should be directed to Jean Bolte Fleurantin at (703) 308-6718. The examiner can normally be reached on Monday through Friday from 7:30 A.M. to 6:00 P.M.

If any attempt to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Mrs. KIM VU can be reached at **(703) 305-8449.** The FAX phone numbers for the

Group 2100 Customer Service Center are: ***After Final*** **(703) 746-7238**, ***Official*** **(703) 746-7239**, and ***Non-Official (703) 746-7240***. NOTE: Documents transmitted by facsimile will be entered as official documents on the file wrapper unless clearly marked "***DRAFT***".

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 2100 Customer Service Center receptionist whose telephone numbers are **(703) 306-5631, (703) 306-5632, (703) 306-5633**.

Jean Bolte Fleurantin

April 6, 2002

JBF/

HOSAIN T. ALAM
PRIMARY EXAMINER